

CLUSTAL W(1.60) multiple sequence alignment

UserP:Human NEDD 4
 UserP:Mouse NEDD 4 HACSNPAPQASRAAAERVPPLAARPCTPARSRSGPPPPQRRLLLLLFLSPSLSVSRSLSP
 UserP:ZGGBP

UserP:Human NEDD 4 SRFSSSSSTVACPGH GRARP -- -VCW
 UserP:Mouse NEDD 4 LQPSRGASSMSSSDMAADESEAPVLSEDEVWEFCLDKTEDGGGSPGSDVTDTCPEPPCGCW
 UserP:ZGGBP MFLRLSWASSTTGSRYGS AFCGSP ---

UserP:Human NEDD 4 KRS EMATCAVEVFGLLEDEENSRI
 UserP:Mouse NEDD 4 ELNPNSLEEELVLTADPYLELHN DDTKV
 UserP:ZGGBP TLAWCVCPVCYGES F1
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UserP:Human NEDD 4 VP
 UserP:Mouse NEDD 4 VP
 UserP:ZGGBP VP
 *

UserP:Human NEDD 4 LYPLPTENPRLERPYTFDFVLHPRSHKSFVKGYLRKMTYLPKTSGSSEDDNAEQAEEL
 UserP:Mouse NEDD 4 LYPLPTENPRMERPYTFDFVLHPRSHKSFVKGYLRKMTYLPKN GSEDENADQAEEL
 UserP:ZGGBP LSHLPTEDPTMEFPYTFDFLLRPRSHKSFVKGYLRKMTYLPKN GSEDENADQAEEL
 *

UserP:Human NEDD 4 PGWVVDQPDAAACHLQQQQEP QDNL
 UserP:Mouse NEDD 4 PGWVVDQPDAAATHLPHPPPEP DDDLT
 UserP:ZGGBP HGWEVVDSDNSASQHQEELPPP SLMDVSS
 *

UserP:Human NEDD 4 DAEN --GNIQLQAQRAFTTRRQISEETES VDNQESSENWEIIREDEATMYSSQAFPS
 UserP:Mouse NEDD 4 DEDN --DDMQLQAQRAFTTRRQISEEDVDG PDNRESPENWEIVREDENTEYSGQAVQS
 UserP:ZGGBP ESDNNIRQINQEAHRRFRSRHISEDLFPEPSEGGIWPETISEEVNIAGDSLGVVL
 *

UserP:Human NEDD 4 PPP --SSNLDVPTHAEELNARLTIFGNSAVSQPASSN HSSR RGSLOQAYTFEEQP
 UserP:Mouse NEDD 4 PP --SGHIIQVTHLAEFNTLAVCGNPATSQPVTSSN HSSR GGSLOQAYTFEEQP
 UserP:ZGGBP PPPASPGSRI SPQELSEELSRRLQITPDNGEQFSSLIQEPSPSLRSCSVTDAVAEQG
 *

UserP:Human NEDD 4 TLP --VLLPTS QATVETSQLTSSQ
 UserP:Mouse NEDD 4 TLP --VLLPTS Q
 UserP:ZGGBP HLPPPSVAVVHTTPG IMQLAEDGASGSATN
 *

UserP:Human NEDD 4 SS -- AGPQSQA STSDS -- GQVQTQS --
 UserP:Mouse NEDD 4 D
 UserP:ZGGBP SINHLIEPQIFRFRSLSSPTVTLXAPLEGAKDSPVRPAVKITLSNFPQSPQSPYNSPKPQ
 *

UserP:Human NEDD 4 EIEQ FIPAHLPFGTSLDTSNDL
 UserP:Mouse NEDD 4 DFFSFIPAHLPFGTSLDTSNDL
 UserP:ZGGBP HAVTQSF FLKFPVHMPKSTSLN PNDLGP
 *

UserP:Human NEDD 4 ENVAITGPAVPYSPDYFRKYEFFFRKLFK
 UserP:Mouse NEDD 4 QHVAITGPAVPYSPDYFRKYEFFFRKLFK
 UserP:ZGGBP FLQHPAITGPAVPYSPDYFRKYEFFFRKLFK
 *

UserP:Human NEDD 4 QNDIPNFFEMFLRRATVLEDSYRFIMGVFRADFLFARLWIEFDGEFGLDYGGVAFWEFFL
 UserP:Mouse NEDD 4 QTDIPNFFEMFLRRANILEDSYRFIMGVFRADFLFARLWIEFDGEFGLDYGGVAFWEFFL
 UserP:ZGGBP PADIPNFFEMFLHRIINIFESYRFIMSVFRPDVLFARLWIEFESEFGLDYGGVAFWEF
 *

UserP:Human NEDD 4 ISFEMFNPPYGLFEYSATDNYTLQINPNSGLCHLHLSYFFFIGPVAGMAVYHGFLLDGF
 UserP:Mouse NEDD 4 ISFEMFNPPYGLFEYSATDNYTLQINPNSGLCHLHLSYFFFIGPVAGMAVYHGFLLDGF

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UserP:ZGGBP_1
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UserP:Human_NEDD_4 FIRPFYKMMHLHKPITLHDMESVDSEYYNSLRWILENDPTELDLRFIIIDEELFGQTHQHEL
UserP:Mouse_NEDD_4 FIRPFYKMMLOKLITLHDMESVDSEYYSSLRWILENDPTELDLRFIIIDEELFGQTHQHEL
UserP:ZGGBP_1
*****

UserP:Human_NEDD_4 KNGGSEIVVTNKNKKEYIYLVIQWRFVNRIQKQMAAFKEGFFELIPQDLIKIFDENELEL
UserP:Mouse_NEDD_4 KNGGSEIVVTNKNKKEYIYLVIQWRFVNRIQKQMAAFKEGFFELIPQDLIKIFDENELEL
UserP:ZGGBP_1
*****

UserP:Human_NEDD_4 LMCGLGDVDVNDWREHTK
UserP:Mouse_NEDD_4 LMCGLGDVDVNDWREHTK
UserP:ZGGBP_1
*****

UserP:Human_NEDD_4
UserP:Mouse_NEDD_4
UserP:ZGGBP_1
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UserP:Human_NEDD_4
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Exhibit 3: Clustal W alignment of ZGGBP-1 to the human and mouse forms of NEDD-4. The functional domains identified using Hmm for ZGGBP-1 are shown in Red. The equivalent functional domains annotated in SwissProt for the human and mouse NEDD-4 are shown in green.